

### **REMARKS/ARGUMENTS**

Applicant's claims have been rejected over a proposed combination of the teachings of Benjey '655 with those of Hoshimoto et al on the basis that Applicant's invention would be obvious under 35 USC §103 over the proposed combination.

Applicant's invention is directed to fuel tanks for motor vehicles and relates to the problem of controlling vapor emission during refueling in such a way as to ensure proper nozzle shutoff and to prevent overfilling and fuel spillage (see applicants' specification paragraphs [0009] and [0010]). In particular, the invention addresses the problem of failure of the refueling nozzle to automatically shut off when the tank is full and fuel rises in the filler tube to cause overflow or "spit back" and subsequent fuel spillage and vapor emission to the atmosphere.

The requirement that vapor emission must be controlled during refueling and escape of fuel and spillage prevented is well known to persons of ordinary skill in the art designing motor vehicle fuel systems. As set forth in the Supplemental Declaration of Robert P. Benjey submitted herewith, these regulations have been mandated in the U.S. and, since 1998 manufacturers of motor vehicles in the U.S. are required to have their fuel systems certified under these Federally mandated regulations in order for the vehicles to be placed on sale in the United States.

Vehicles sold in the United States must meet the mandated requirements irrespective of the location within the United States and in the face of climatic conditions encountered at the refueling site.

Thus, the reference to "proper nozzle shutoff" in paragraph [0010] of Applicant's specification is part of the problem addressed by Applicants' invention.

The Examiner has suggested that filling of a fuel tank is "more an annoyance to the user rather than a conclusion that the device of the combination fails to work".

As stated in paragraph [0009] of Applicant's specification, part of the problem also addressed by the invention is venting and fuel spillage when the user has chosen to fill the tank. The Examiner's statement is thus disingenuous, and amounts to denying the existence of the problem.

Furthermore, if the nozzle shuts off prematurely when refueled at any of the refueling facilities available, the vehicle would not be able to pass the Federally mandated vapor emission control requirements as set forth in the Supplemental Declaration of Robert P. Benjey, attached herewith and thus the vehicle would be

unsalable and unusable in the United States. These circumstances would be clearly recognized by persons of ordinary skill in the art as part of the problem addressed by the present invention in paragraphs [0009] and [0010] of Applicant's specification.

In the Examiner's proposed combination of the teachings of Hashimoto et al with those of Applicant's earlier '655 patent, the Examiner has further proposed to add a mechanical nozzle seal in the upper end of the filler tube of the Hashimoto et al vapor emission control system.

As set forth in paragraph 5 of the Declaration of Robert P. Benjey dated March 24, 2004, of record in the parent application, the system would cause premature nozzle shutoff and inability to fill the tank. This would clearly be not "proper nozzle shutoff" as set forth in Applicant's definition of the problem to be solved by the present invention.

The Examiner has also stated that any pressure buildup in the tank would "certainly be greater than any potential high pressure value in the cup area 21", it being understood that the cup area 21 refers to the upper end of the filler tube of Hashimoto et al. However, this statement ignores the differential of area exposed to the pressure in the valve structure of Hashimoto et al. The area of the diaphragm exposed to the pressure in the filler cup is greater than the area of the underside of the diaphragm due to the attachment of the valve member to the diaphragm exposed to the pressure in the tank. Thus, the pressure in the filler cup will exert a greater force on the diaphragm causing the valve to remain closed and blocking vapor emission to the canister through the conduit 8 of Hashimoto.

The Examiner also states on page 3 of the outstanding office action that "any erratic vapor pressure conditions as a result of supplied fuel temperature and/or temperature of the fuel tank manifest themselves inside of the tank not in the area 21 as all fuel is supplied to filler neck in an area beyond area 21". This statement by the Examiner overlooks the situation where, if the mechanical seal were added to the Hashimoto et al structure, as suggested by the Examiner, the pressure of the fuel discharging from the nozzle, when the tank is full would cause the tank to expand until the tank is ruptured. Clearly this sort of operation, resulting in disaster, is not to be contemplated as that which is an "obvious" modification of the teachings of the references.

Applicant notes the Examiner's statement that "a test for obviousness does not

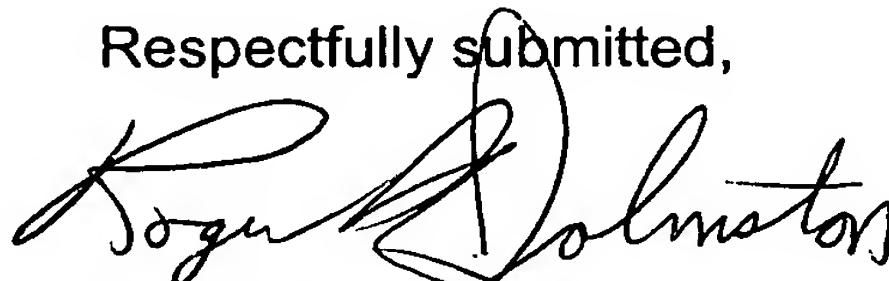
revolve around public acceptance of a device of a proposed combination of elements reasonably suggested by the prior art".

The problem addressed by Applicant's invention is that of providing fuel tank vapor emission control during refueling of motor vehicles sold and operated in the United States which implies refueling at refueling stations widely available in the United States and in a manner which would meet the Federally mandated vapor emissions requirements. This aspect of the problem addressed by the invention is stated to be understood by persons working in the art as set forth in the Supplement Declaration of Robert P. Benjey submitted herewith.

On page 4 of the Final Rejection, the Examiner has stated that "it is presumed that skilled workers would as a matter of course, if they do not immediately obtain desired results, make certain experiments and adaptations within the skill of the competent worker". The Examiner appears to be saying that the test of obviousness amounts to one skilled in the art experimenting until the results of the present application are achieved. The Examiner's statement is respectfully traversed; as, the statutory test of obviousness is based upon the teachings of the references suggesting or leading one of ordinary skill in the art in an obvious manner to the result claimed. If the addition of a mechanical seal to the structure taught in the Hashimoto et al patent would result in a system which would not work installed in motor vehicles operated in the United States where the user would refuel at the available refueling stations, then the result is inoperative so far as the problem to be solved. Thus, the Examiner's rejection is deemed not sustainable.

For the reasons set forth above, it is requested that the Examiner's rejection be withdrawn and the claims made the subject of a Notice of Allowance.

Respectfully submitted,



Roger A. Johnston  
Registration No.: 25,880  
Attorney for Applicant

Eaton Corporation  
1111 Superior Avenue  
Cleveland, Ohio 44114-2584  
(216) 523-4132

**IN THE UNITED STATES PATENT & TRADEMARK OFFICE**

APPL. NO. : 10/060,121 CONFIRMATION NO.: 5887  
APPLICANTS : ROBERT P. BENJEY  
TITLE : METHOD AND SYSTEM FOR CONTROLLING LIQUID FUEL  
AND VAPOR FLOW DURING REFUELING OF A MOTOR  
VEHICLE FUEL TANK  
FILED : January 31, 2002  
ART UNIT : 3753  
EXAMINER : JOHN A. RIVELL  
CUSTOMER NO. : 00200

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**SUPPLEMENTAL DECLARATION UNDER 37 CFR 1.132**

Robert P. Benjey solemnly affirms and declares that:

1. He is the inventor in the present application;
2. That as stated in paragraph [0010] of the present application, the problems to be solved is "to find a way or means of controlling the fuel vapor emission during refueling of motor vehicle tanks in such a way as to ensure proper (emphasis added) nozzle shutoff and (emphasis added) to prevent overfilling and fuel spillage";
3. That "proper" shutoff as referred to in paragraph [0010] of the specification would be clearly understood, by persons working in the art of motor vehicle fuel systems, to mean avoiding premature shutoff during fill and avoiding failure to shutoff when the tank is full as required by the Federally mandated regulations which have been in effect in the United States since 1998, commonly referred to as On-Board Refueling Emissions or On-Board Refueling Vapor Recovery (ORVR) and Stage II recovery using a booted nozzle or vacuum nozzle;



That since 1998 motor vehicles manufacturers must meet the aforesaid ORVR and Stage II requirements in order to have their vehicles certified for sale in the U.S.;

5. That under the Federal regulations, motor vehicles sold in the U.S. must provide proper control of vapor emissions when refueled anywhere in the U.S. and under all climatic conditions encountered in service;

6. That vapor vacuum type refueling nozzles have been in widespread use in the major urban areas of the U.S. and in at least 14 states since 1998.

7. Declarant that all statements herein made of his own knowledge are true and statements on information and belief are believed to be true; and, that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

Ann Arbor, Michigan

Date: 9/14/04

Robert P. Benjey  
Robert P. Benjey